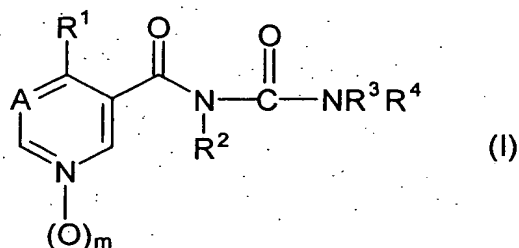


## Claims:

BCS 03-1027

1. A process for preparing N-disubstituted N'-[4-haloalkylpyri(mi)dinyl]carbonyl ureas of the formula (I),



5 where

A is CH or N;

R<sup>1</sup> is (C<sub>1</sub>-C<sub>4</sub>)-haloalkyl;

R<sup>2</sup> is H or M;

10 M is an organic or inorganic cation;

R<sup>3</sup> is (C<sub>1</sub>-C<sub>8</sub>)-alkyl, (C<sub>3</sub>-C<sub>6</sub>)-alkenyl, (C<sub>3</sub>-C<sub>6</sub>)-alkynyl, (C<sub>1</sub>-C<sub>8</sub>)-alkoxy, (C<sub>3</sub>-C<sub>6</sub>)-alkenyloxy, (C<sub>3</sub>-C<sub>6</sub>)-alkynyloxy, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkyl, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkyl-(C<sub>1</sub>-C<sub>6</sub>)-alkyl, O-CH<sub>2</sub>-(C<sub>3</sub>-C<sub>8</sub>)-cycloalkyl, where the last nine groups mentioned are unsubstituted or substituted by one or more R<sup>5</sup> radicals, or is aryl, heterocyclyl, aryloxy, heterocyclyloxy, -CH<sub>2</sub>-aryl, -O-CH<sub>2</sub>-aryl, -CH<sub>2</sub>-heterocyclyl, -O-CH<sub>2</sub>-heterocyclyl, where the last eight radicals mentioned are unsubstituted or substituted by one or more R<sup>6</sup> radicals;

R<sup>4</sup> is (C<sub>1</sub>-C<sub>8</sub>)-alkyl, (C<sub>3</sub>-C<sub>6</sub>)-alkenyl, (C<sub>3</sub>-C<sub>6</sub>)-alkynyl, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkyl, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkyl-(C<sub>1</sub>-C<sub>6</sub>)-alkyl, where the last five groups mentioned are unsubstituted or substituted by one or more R<sup>5</sup> radicals, or is aryl, heterocyclyl, -CH<sub>2</sub>-aryl, -CH<sub>2</sub>-heterocyclyl, where the last four groups mentioned are unsubstituted or substituted by one or more R<sup>6</sup> radicals;

or

$R^3$  and  $R^4$  together with the adjacent N atom form a 3 - 8 membered saturated, unsaturated or aromatic heterocyclic ring which optionally comprises up to three further heteroatoms from the group of N, S and O and which is unsubstituted or substituted by one or more (C<sub>1</sub>-C<sub>6</sub>)-alkyl, (C<sub>1</sub>-C<sub>6</sub>)-haloalkyl or  $R^5$  radicals;

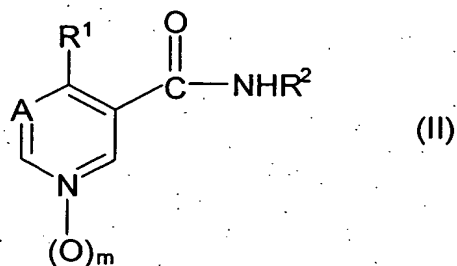
$R^5$  is halogen, (C<sub>1</sub>-C<sub>6</sub>)-alkoxy, (C<sub>1</sub>-C<sub>6</sub>)-haloalkoxy, S(O)<sub>n</sub>-(C<sub>1</sub>-C<sub>6</sub>)-alkyl, S(O)<sub>n</sub>-(C<sub>1</sub>-C<sub>6</sub>)-haloalkyl, CN, COO(C<sub>1</sub>-C<sub>6</sub>)-alkyl, NO<sub>2</sub>, N[(C<sub>1</sub>-C<sub>6</sub>)-alkyl]<sub>2</sub>, phenoxy, unsubstituted or substituted by one or more radicals from the group of (C<sub>1</sub>-C<sub>6</sub>)-alkyl, (C<sub>1</sub>-C<sub>6</sub>)-haloalkyl and halogen;

$R^6$  is  $R^5$ , (C<sub>1</sub>-C<sub>6</sub>)-alkyl, (C<sub>1</sub>-C<sub>6</sub>)-haloalkyl;

m is 0 or 1, and

n is 0, 1 or 2,

by reacting a 4-haloalkylpyri(mi)dinylcarboxamide of the formula (II),

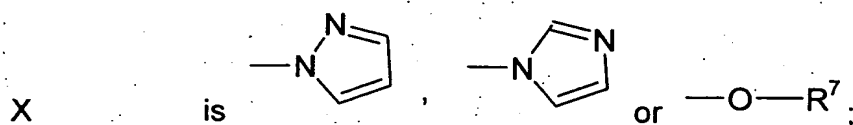


in which A,  $R^1$ ,  $R^2$  and m have the meaning indicated for formula (I),

in the presence of a base with a compound of the formula (III),



in which



$\text{R}^7$  is unsubstituted or mono- or polyhalo, preferably F and/or Cl, -substituted ( $\text{C}_1$ - $\text{C}_6$ )-alkyl or ( $\text{C}_3$ - $\text{C}_6$ )-alkenyl, phenyl or benzyl, particularly preferably  $\text{CH}_3$ ,  $\text{C}_2\text{H}_5$ ,  $i\text{-C}_3\text{H}_7$ ,  $-\text{CH}_2\text{-CH=CH}_2$ ,  $-\text{CH}_2\text{-CF}_3$ ,  $\text{CH}_2\text{-CF}_2\text{-CF}_2\text{H}$ ,  $\text{CCl}_3$ , phenyl or benzyl, in particular  $\text{CH}_3$  or  $\text{C}_2\text{H}_5$ .  
 $\text{R}^3, \text{R}^4$  have the meanings indicated for formula (I).

2. The process as claimed in claim 1, where the symbols and indices in the formulae (I) have the following meanings:

10 A is CH;

$\text{R}^1$  is  $\text{CF}_3$ ;

$\text{R}^2$  is M or H;

M is Li, Na, K, Cs,  $\text{Ca}^{2+}/2$ ,  $\text{N}[(\text{C}_1\text{-C}_4)\text{-Alkyl}]_4$ , such as  $\text{N}(\text{CH}_3)_4$ ,  $\text{N}(\text{C}_2\text{H}_5)_4$ ;

15  $\text{R}^3$  is ( $\text{C}_1$ - $\text{C}_8$ )-alkyl, ( $\text{C}_3$ - $\text{C}_6$ )-alkenyl, ( $\text{C}_3$ - $\text{C}_6$ )-alkynyl, ( $\text{C}_1$ - $\text{C}_8$ )-alkoxy, ( $\text{C}_3$ - $\text{C}_6$ )-alkenyloxy, ( $\text{C}_3$ - $\text{C}_6$ )-alkynyloxy, ( $\text{C}_3$ - $\text{C}_8$ )-cycloalkyl, ( $\text{C}_3$ - $\text{C}_8$ )-cycloalkyl- $(\text{C}_1\text{-C}_6)$ -alkyl,  $\text{O-CH}_2\text{-(C}_3\text{-C}_8\text{)-cycloalkyl}$ , where the last nine groups mentioned are unsubstituted or substituted by one or more  $\text{R}^5$  radicals, or is aryl, heterocyclyl, aryloxy, heterocyclyloxy,  $-\text{CH}_2\text{-Aryl}$ ,  $-\text{O-CH}_2\text{-aryl}$ ,  $-\text{CH}_2\text{-heterocyclyl}$ ,  $-\text{O-CH}_2\text{-heterocyclyl}$ , where the last  
 20 eight groups mentioned are unsubstituted or substituted by one or more  $\text{R}^6$  radicals;

$\text{R}^4$  is ( $\text{C}_1$ - $\text{C}_8$ )-alkyl, ( $\text{C}_3$ - $\text{C}_6$ )-alkenyl, ( $\text{C}_3$ - $\text{C}_6$ )-alkynyl, ( $\text{C}_3$ - $\text{C}_8$ )-cycloalkyl, ( $\text{C}_3$ - $\text{C}_8$ )-cycloalkyl- $(\text{C}_1\text{-C}_6)$ ,  $(\text{C}_1\text{-C}_6)$ -alkyl, where the last five groups mentioned are unsubstituted or substituted by one or more  $\text{R}^5$  radicals,

or is aryl, heterocyclyl, -CH<sub>2</sub>-aryl, -CH<sub>2</sub>-heterocyclyl, where the last four groups mentioned are unsubstituted or substituted by one or more R<sup>6</sup> radicals;

R<sup>5</sup> is halogen, (C<sub>1</sub>-C<sub>6</sub>)-alkoxy or (C<sub>1</sub>-C<sub>6</sub>)-haloalkoxy;

5 R<sup>6</sup> is R<sup>5</sup>, (C<sub>1</sub>-C<sub>6</sub>)-alkyl, (C<sub>1</sub>-C<sub>6</sub>)-haloalkyl;

m is 0;

n is 0, 1 or 2.

10 3. The process as claimed in claim 1 or 2, where the symbols in the formula (III) have the following meanings:

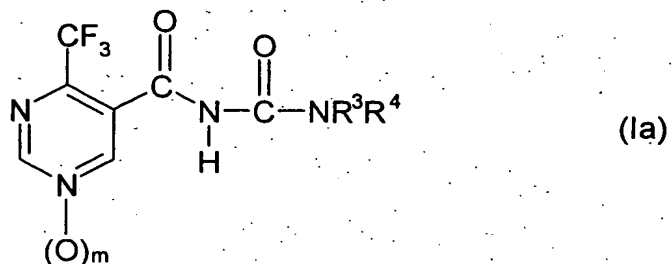
X is O-R<sup>7</sup> and

R<sup>7</sup> is unsubstituted or mono- or polyhalo, preferably F and/or Cl, -substituted (C<sub>1</sub>-C<sub>6</sub>)-alkyl or (C<sub>3</sub>-C<sub>6</sub>)-alkenyl, phenyl or benzyl.

15 4. The process as claimed in one or more of claims 1 to 3, where the molar ratio of amide of the formula (II) to compound (III) is 1:1 - 1.1.

5. The process as claimed in one or more of claims 1 to 4, where from 1 to 1.1 equivalents (based on the amide of the formula (II)) of a base from the group of  
20 the hydroxides and (C<sub>1</sub>-C<sub>4</sub>)-alcoholates of the alkali metal and alkaline earth metals, alkyllithium compounds, metal hydrides, carbonates and acetates of the alkali metals and alkaline earth metal, tertiary amines having C<sub>1</sub>-C<sub>4</sub>-alkyl radicals and sterically hindered nitrogen bases are employed.

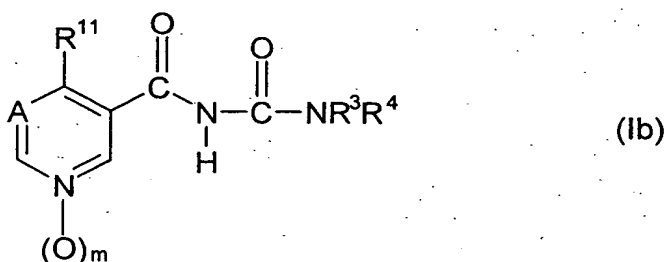
25 6. A compound of the formula (Ia),



where

$R^3$ ,  $R^4$  and  $m$  have the meanings indicated in claim 1 for formula (I).

- 5      7.      A compound of the formula (Ib),



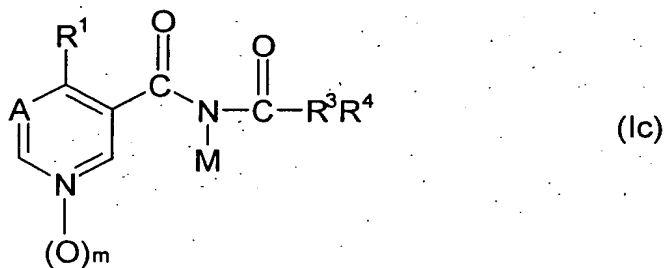
where

$R^{11}$  is (C<sub>1</sub>-C<sub>4</sub>)-haloalkyl with the exception of CF<sub>3</sub>; and

$A$ ,  $R^3$ ,  $R^4$ ,  $m$  have the meanings indicated in claim 1 for formula (I).

10

8.      A compound of the formula (Ic),



in which

$M$  is an organic or inorganic cation; and

- 15       $A$ ,  $R^1$ ,  $R^3$ ,  $R^4$  and  $m$  have the meanings indicated in claim 1 for formula (I).

9.      A composition for controlling harmful arthropods and helminths, comprising an

effective amount of at least one compound of the formula (Ia), (Ib) or (Ic) as claimed in claim 6, 7 or 8, together with additives or auxiliaries customary for these applications.

5 10. The composition as claimed in claim 9, comprising at least one further arthropodicial and/or helminthicial active compound.

11. The use of a compound as claimed in any of claims 6 to 8 or of a composition as claimed in claim 9 or 10 for controlling harmful arthropods and/or helminths.

10

12. A method for controlling harmful arthropods and/or helminths, where the pests are brought directly or indirectly into contact with a compound as claimed in any of claims 6 to 8 or with a composition as claimed in claim 9 or 10.

15 13. Seed material coated with or comprising an arthropodicially and/or helminthicially effective amount of a compound as claimed in any of claims 6 to 8 or of a composition as claimed in claim 9 or 10.

20 14. The use of a compound as claimed in any of claims 6 to 8 for producing a veterinary medicinal product.